

**AMENDMENTS TO THE CLAIMS:**

**Complete Listing of Claims**

Claim 1. (canceled)

Claim 2. (currently amended) A system according to claim 7 4 wherein the sensor-independent instructions stored in the second memory (26) are configured so that the data processed by the second micro-controller (24) can be output.

Claim 3. (currently amended) A system System according to claim 2, further comprising which furthermore comprises an interface (28) by means of which the data processed can be output.

Claim 4. (currently amended) A system System according to claim 3, further comprising which furthermore comprises an output unit that is connected to the interface (28).

Claim 5. (currently amended) A system System according to claim 7 4, further comprising an analog-digital converter (14) connected between the sensor (12) and the first micro-controller (10).

Claim 6. (currently amended) A system System according to claim 7 4, wherein the second micro-controller (24) is furthermore connected to a timer unit by way of the bus system (22).

Claim 7. (currently amended) A system for processing the measuring signals from a sensor comprising:

a first micro-controller, comprising an input for the sensor data, a first memory and a first processor,

a second micro-controller comprising a second memory and a second processor;

a bus system that connects the first micro-controller with the second micro-controller,

wherein the first memory stores data and instructions that are configured so as to be adapted to the sensor and enable the conversion of the signals provided by the sensor into data representing the variables to be measured, and

wherein the first processor is connected such that it can execute the instructions stored in the first memory, and thereby convert in real-time the measuring signals of the sensor into data that represent the measurable variable, and transfer these data by way of the bus system to the second micro-controller,

wherein the second memory stores sensor-independent data and instructions, which enable the processing of the data transferred by the bus system, representing the variable to be measured, and whereby the second processor is connected so as to be able to execute the sensor-independent instructions in the second memory, and System according to claim 1,

wherein where both the first memory (18,19) and the second memory (26,30) each comprise a data memory (19;30) and a program memory (18,26).

Claim 8. (currently amended) A system System according to claim 7 4, wherein the first microcontroller (10) and the second micro-controller (24) are furthermore connected to transmission links (32), which control the access to the bus system (22).

Claim 9. (currently amended) A system System according to claim 7 4,  
wherein the sensor (12) consists of a resistor array serving to measure voltage  
and/or current parameters.

Claim 10. (currently amended) A system System according to claim 9, where  
the sensor is a flow meter to measure the consumption of gases or fluids.

Claim 11. (canceled)

Claim 12. (currently amended) An Electronic electricity consumption meter for processing the measuring signals from a sensor comprising:

a first micro-controller, comprising an input for the sensor data, a first memory and a first processor,

a second micro-controller comprising a second memory and a second processor;

a bus system that connects the first micro-controller with the second micro-controller,

wherein the first memory stores data and instructions that are configured so as to be adapted to the sensor and enable the conversion of the signals provided by the sensor into data representing the variables to be measured, and

wherein the first processor is connected such that it can execute the instructions stored in the first memory, and thereby convert in real-time the measuring signals of the sensor into data that represent the measurable variable, and transfer these data by way of the bus system to the second micro-controller, and

wherein the second memory stores sensor-independent data and instructions, which enable the processing of the data transferred by the bus system, representing the variable to be measured, and whereby the second processor is connected so as to be able to execute the sensor-independent instructions in the second memory, and An Electronic electricity consumption meter according to claim 11, wherein the second memory (26,30) is configured so as to contain data and instructions that represent a current consumption tariff system, and where the further processing of the data representing the variable to be measured results in the computation of the electricity consumed.

Claim 13. (original) An Electricity consumption meter according to claim 12, where the consumption tariffs are time-dependent and where the time information required for the computation of the electricity consumption costs are supplied by the timer.